



ISSN (E): 2277-7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.23  
TPI 2022; SP-11(5): 1300-1302  
© 2022 TPI  
[www.thepharmajournal.com](http://www.thepharmajournal.com)  
Received: 07-02-2022  
Accepted: 13-03-2022

**Dr. SB Singh**

Additional Director, MP STATE  
Agricultural Marketing Board,  
Kisan Bhavan, Arera Hills  
Bhopal, Madhya Pradesh, India

**Dr. Pawan Singh Sisodia**

Assistant Seed Certification  
Officer, MP Seed Certification  
Agency Bhopal, Madhya  
Pradesh, India

## Madhya Pradesh: Agriculture economics and extension in new era

**Dr. SB Singh and Dr. Pawan Singh Sisodia**

### Abstract

There is limited scope of distribution of subsidies and inputs, are also burdening the public sector, with little time to take on core growth operations Madhya Pradesh emerged as a state with the highest growth rate in agriculture previously so called BIMARU group of poor northern, central and eastern states. There is a limited scope of public extension in India and non-extension responsibilities, including distribution of subsidies and inputs, are also burdening the public sector, with little time to take on core growth operations. The article aims to update the Indian farm extension and economics system and suggest ways of improving the Indian extension system. The central extension networks are extremely biased towards crop production in India which dis-regards allied sectors. Over the years, non-extension jobs stress, underemployed extension units have increased. The production was twice or sometimes even third that of crop production in the high-value agriculture sector Agriculture expansion programs, however, are almost non-organized in these industries. In addition extension personnel at national level are below the required 1:750 Ratio. Without the successful delivery of the agricultural expansion to rural smallholder farmers. the Government's dream of double farmers income by 2022 is difficult task if problems are not effective.

**Keywords:** Agriculture, economics, extension, new era

### Introduction

Worldwide populations and food demand continue to rise, but in many countries, including India, growth in agriculture productivity is slowing. With the estimated world population of more than 9.0 billion by 2050, global agriculture is facing significant challenges because of increased demand for land and water resources and their restricted or diminished availability. Agricultural work in the foreseeable future will land, crop yield plateauing in many parts of the world, and increased food price volatility. There is an urgent need for the development of new crop species and technologies to increase agricultural production without impacting the agro-ecosystem through the use of increasingly modern bioscience and physical sciences. Intensive opposition to the technology is leading to confusion and skepticism about the environmental, ecological and socio-economic impacts of modern plant biotechnology. Apart from reacting to mineral resources constraints in agricultural output and the financial and human resources limitations faced by agricultural research, national agricultural research and extension systems will address the issues posed by proponents of biotechnology and the supporters of conventional methods of farming ranging from organic farming. There are several interrelated consequences for agriculture and food security for the large changes that have influenced Earth's and human species of the 21<sup>st</sup> century. From this viewpoint, some interactions of socio-economic developments with biophysical and technological changes seem obvious, while other will certainly confuse us. It seems clear that much more food must be produced with less water and less energy in the same or possibly smaller quantity of ground. It seems certain of that society would, on a long-term basis, allow farming to follow the same environmental standards as other industries. That means farming must be more ecosystem-friendly and sustainable that it is today. Nevertheless, this must be achieved without sacrificing the growth of agricultural productivity needed to ensure and sustain food and livelihood health.

Apart from reacting to mineral resources constraints in agricultural output and the financial and human resources limitations faced by agricultural research, national agricultural research and extension system will address the issues posed by proponents of biotechnology and the supporters of conventional methods of farming ranging from organic farming. There are several interrelated consequences for agriculture and food security for the large changes that have influenced Earth's and human species of the 21<sup>st</sup> century.

**Corresponding Author**

**Dr. SB Singh**

Additional Director, MP STATE  
Agricultural Marketing Board,  
Kisan Bhavan, Arera Hills  
Bhopal, Madhya Pradesh, India

From this viewpoint, some interactions of socio-economic developments with biophysical and technological changes seem obvious, while others will certainly confuse us. It seems clear that much more food must be produced with less water and less energy in the same or possibly smaller quantity of ground. It seems certain that society would, on a long-term basis, allow farming to follow the same environmental standards as other industries. That means farming must be more ecosystem friendly and sustainable than it is today. Nevertheless, this must be achieved without sacrificing the growth of agricultural productivity needed to ensure and sustain food and livelihood health. The major issues for the National Agricultural Research system will continue to be the overall concerns of nutritional and livelihood health, poverty reduction, Agricultural productivity, gender equity, ecology and the environment, cost competitiveness and efficiency. Fig. 1 shows the use of agriculture equipment.

### Why the extension of farming in Madhya Pradesh?

Growth in agriculture depended on different factors, including precipitation, irrigation capacity, research and development in agriculture, and price stability, etc. Agriculture enlargement as it transfers inventions in the labs of farmers lands is also a critical factor. The correct information is important for the farming community to take informed decisions in the right time and place across appropriate channels. The development has played a significant role in the development of agriculture for many years, especially during the early years of the first Industrial revolution (Babu *et al.* 2013). It has played a primary role in spreading agriculture innovation and farming practices so that agricultural and rural growth has been substantially accelerated. With modifying economic policies, technology demand and supply characteristics and marketing changes, the application program faces more possibilities and risks.

### Approaches to Agricultural Extension and economics in India

Extension services have been provided primarily by the public sector for a long time since independence. The public sector also currently has a two-tier system as a major extension service provider. At the state level, ICAR is the nodal institute in cultivation research and extension and at the state level, State Agricultural Universities (SAU) are facilitating the extension of agriculture through the Krishi Vigyan Kendra (KVK) and the Agricultural technology management agencies (ATMA). The public extension is however highly detrimental to crop production, denying allied industries. Almost all private actors, civil society organisations including farmers' and NGOs have an important role to play in the provision of expansion programs, apart from the existing public department of natural resources (Birner and Andersen 2007). Developed and senior managers trained to collect and analyze the data needed for assessment and impact evaluation. "If it cannot be evaluated, the change cannot be accomplished". Overall concerns of nutritional and livelihood health, poverty reduction, agricultural productivity, gender equity, ecology and the environment, cost competitiveness and efficiency.

### Investment in Development of Agriculture Throughout India and Madhya Pradesh

The expansion program is split into development training. R & E covers extension education, while 'extension and training' encompasses frontline and field expansion. Public

support for research & extension in agriculture is received both by the center and the state, with respectively 55% and 45% by the state of the overall allocation. Total expenditure on agriculture and related companies rose by €30.072 million in 2000-01 ET 2014-15 (Gulati *et al.* 2018). The state government spends approximately 82% of the total budget allocation and the center allocates approximately 18 percent. The number of allocations for agriculture and training alone in 2014-2015 was nearly 1,7954 million, up from €6,402 million in 2000-2001, thereby achieving 7.6% of the CAGR for the same period. The provision of funding for extension programs to promote new developments in this area constitutes an important element of agricultural R & E. Fig. 3 shows the India real GDP growth.

Previously, India expended on research and development a very small portion of its agricultural gross domestic product (GDPA) at 0.31% in 1971 and grew slightly to 0.44% (1991), two decades later. In terms of GDPA share, agricultural R&E spending risen from 0.51% to 0.55% between 1999-00 and 2014-15. As a percentage of GDPA, farm R&E investment remained steady at 0.6% from 2000-01 to 2007-09 and increased significantly in 2010-11 to 0.8% of GDPA and eventually to 0.54% in 2014-15. There are significant differences between the Member States on the national level, where India spends approximately 0.55 percent of GDPA on farming R&E. Less than 0.6 percent of GDPA is expended in agricultural R&E by most Eastern States.

### Approaches to Agricultural Extension & economics in India especially Madhya Pradesh

Extension services have been provided primarily by the public sector for a long time since independence. The public sector also currently has a two-tier system as a major extension service provider. At the state level, ICAR is the nodal institute in cultivation research and extension and at the state level, State Agricultural Universities (SAU) are facilitating the extension of agriculture through the Krishi Vigyan Kendra (KVK) and the Agricultural technology management agencies (ATMA). The public extension is however highly detrimental to crop production, denying allied industries. Almost all private actors, civil society organizations including farmers and NGOs have an important role to play in the provision of expansion programs, apart from the existing public department of natural resources (Birner and Andersen 2007) [2]

### Investment in development of agriculture

Through out India, the expansion program is split into development training. R&E covers 'extension education, while extension and training' encompasses frontline and field expansion. Public support for research & extension in agriculture is received both by the center and the state, with respectively 55% and 45% by the state of the overall allocation. Total expenditure on agriculture and related companies rose by € 30.072 million in 2000-01 to € 60.542 million 2014-15, with a compound annual growth rate of 5% in 2000-01 ET 2014-15 (Gulati *et al.* 2018). The state government spends approximately 82% of the total budget allocation and the center allocates approximately 18 percent. The number of allocations for agriculture and training alone in 2014-2015 was nearly 1, 7954 million, up from € 6,402 million in 200-2001, thereby achieving 7.6% of the CAGR for the same period. The provision of funding for extension programs to promote new developments in this area

constitutes and important element of agricultural R&E. Fig. 3 shows the indiareal GDP growth.

### Barriers in Agricultural Extension

Stefanie Kaegi (2015) notes that some of India's major challenges in terms of public extension are saddled by non-extension activities, a shortage of trained public extension specialists, the reluctance of the extension professionals to work in remote areas, which is ignored according to national priorities. However, there are a number of problems and difficulties in the private enlargement sector in India. "Although there are numerous organizations in the field of extension, there is still no capacity for private extension to enter poor and neglected regions, businesses and sectors of society."

### Conclusion

In the midst of these years non-extension operations such as the distribution of subsidies and inputs have been burdening the under-employed extension departments with ignoring core extension research. Consequently, given the limited number of extension employees, the government should provide private and civic extension providers with a favorable environment to encourage multiple channels, given that the increasing service needs of farmers can not only be met by public extension. The extension staff at national level is currently under the required ratio of 1:750. Recruitment and education of enough extension staff will make a significant contribution to the farmer's income and enough professional women extension workers need to be recruited in the subsector wisely, for example the milk sector, where the involvement of female farmers in the sector is very large. There is great concern about a large number of vacancies in the State Departments for Agriculture. Many States have extension staff up to the level of the Block. Just 6 regions have village level, and 11 states have extension workers up to the level of Village council. In tribal and distant areas that most require extension facilities, the vacancy situation is particularly alarming. India has about 1.2L implication experts, with 7,133 million local agricultural extension workers in China, 2.87 million of whom are regional, 35,100 district, 3,913 million village and area. There is some 30,000 local agriculture extension staff of those 49.6% have a junior university diploma or higher and 67.8% has professional qualifications. No systematic mechanism exists for evaluating and understanding the effect of extension results. Appropriate methodologies must be developed and senior managers trained to collect and analyze the data needed for assessment and impact evaluation. "If it cannot be evaluated, the change cannot be accomplished."

### References

1. Aker JC. "Dial 'A' for agriculture: A review of information and communication technologies for agricultural extension in developing countries," *Agricultural Economics*, 2011.
2. Feder G, Anderson JR, Birner R, Deininger K. "Promises and realities of community-based agricultural extension," in *Community, Market and State in Development*, 2010.
3. Kuehne G *et al.*, "Predicting farmer uptake of new agricultural practices: A tool for research, extension and policy," *Agric. Syst.*, 2017.
4. Genius M, Koundouri P, Nauges C, Tzouvelekas V. "Information transmission in irrigation technology

- adoption and diffusion: Social learning, extension services, and spatial effects," *Am. J. Agric. Econ.*, 2014.
5. Pan Y, Smith SC, Sulaiman M. "Agricultural extension and technology adoption for food security: Evidence from Uganda," *Am. J. Agric. Econ.* 2018.
6. Di Falco S, Veronesi M, Yesuf M. "Does adaptation to climate change provide food security? A micro-perspective from Ethiopia," *American Journal of Agricultural Economics*, 2011.
7. Krishnan P, Patnam M. "Neighbors and extension agents in ethiopia: Who matters more for technology adoption?," *Am. J. Agric. Econ.* 2014.
8. Aguilar A, Carranza E, Goldstein M, Kilic T, Oseni G. "Decomposition of gender differentials in agricultural productivity in Ethiopia," *Agric. Econ. (United Kingdom)*, 2015.
9. Nakasone E, Torero M, Miniten B. "The power of Information: The ICT Revolution in Agricultural Development," *Annu. Rev. Resour. Econ.*, 2014.
10. Waller P, Yitayew M, Waller P, Yitayew M. "Agricultural Drip Irrigation," in *Irrigation and Drainage Engineering*, 2016.
11. Salcedo, Soto Baquero F, Da Silva JG, Sepulveda R. C, and Echenique S. G., "Agricultural and Rural Development," in *The Oxford Handbook of Latin American Economics*, 2012.